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Santa Rosa, Calif. 95403[21] **Appl. No.:** 780,594[22] **Filed:** Jun. 8, 1997**Related U.S. Application Data**[60] **Provisional application No.** 60/009,696 Jan. 11, 1996.[51] **Int. Cl.⁶** B41M 3/12; B05D 3/00;
B05D 1/36; B32B 31/00[52] **U.S. Cl.** 427/152; 427/146; 427/148;
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156/252[58] **Field of Search** 427/146, 147,
427/148, 149, 152, 164, 258, 271, 270,
276, 284, 375, 402; 156/230, 240, 239,
252; 428/914[56] **References Cited****U.S. PATENT DOCUMENTS**

4,104,111	8/1978	Mack	156/656
4,337,289	6/1982	Reed et al.	428/195
4,673,609	6/1987	Hill	428/187
4,936,212	6/1990	Moss	101/216
5,069,954	12/1991	Cole et al.	428/202
5,288,358	2/1994	Logan	156/268
5,312,645	5/1994	Dressler	427/148
5,391,082	2/1995	Airhart	439/68
5,525,177	6/1996	Ross	156/240
5,560,796	10/1996	Yoshimura	156/240

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[57]

ABSTRACT

A method of forming a scratch resistant color ink pattern of multi-color coatings (5) onto a see-through panel (6) with exact registration between successive color coatings of the pattern. The method of the invention includes the steps of: providing a base material (1) having an ink printable release coating on one side thereof; applying a first color coating of ceramic ink (75) to the printable release coating side of the base material (1); applying at least one additional color coating of ceramic ink (76) over at least a portion of the first color coating of ceramic ink (75); perforating the base material to provide a pattern of light passages (28) therethrough, the light passages (28) defining aligned edges of successive color coatings of ceramic inks to ensure exact registration between said successive color coatings of ceramic inks; transferring the pattern of color coatings of ceramic inks (5) onto a surface of a see-through panel (6); and heating the see-through panel (6) to fuse said pattern of color coatings of ceramic inks (5) onto said surface of said see-through panel (6). In one embodiment, the base material (1) consists of water slide paper and such that the pattern of color coatings is wetted and transferred to the see-through panel by water slide transfer. In another embodiment, the base material consists of heat transfer paper and the pattern of color coatings is transferred by application of heat and pressure or just pressure alone.

22 Claims, 35 Drawing Sheets

